9th Class 2020		
Computer Science	Group-II	Paper: I
Time: 1.45 Hours	(Subjective Type)	Marks: 40

(Part-I)

2. Write short answers to any FOUR (4) questions: (8)

(i) What is meant by Abacus?

Ans Abacus is a wooden rack holding horizontal wires with beads strung on them. When these beads are moved around, according to programming rules memorized by the user, all regular arithmetic problems can be done. The history of computers had started about 5000 years ago, with the birth of the abacus.

(ii) Write the definition of electronic data processing (EDP).

Ans The process of performing arithmetic and logic operations with the help of computer is known as electronic data processing (EDP).

(iii) Write the definition of application software.

Ans The application software is a program created to perform a specific task for a user. For example, to create a document, a word processing software is used such as Microsoft Word.

(iv) What are the alpha-numeric keys?

Ans **Alphanumeric Keys:**

These keys are used to enter alphabets numbers and other special characters into the computer. Position of two keys is similar to that of a typical typewriter. So, these are:

1. Alphabet Keys 2. Number Keys
3. Special Character Keys

(v) Write the use of microphone in computer.

Ans A microphone is an input device used to digitally record audio data, such as the human voice. It can be plugged into a computer or recorder. Many productivity applications can accept input via a microphone, enabling the user to dictate text or issue commands orally. Software in the computer converts the sound impulses into digital form. It is then stored in memory and processed when required.

(vi) Write the definition of printer.

Ans A printer is a device that produces hardcopy on the paper. Printer is commonly used in business to get the documents printed on paper.

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3. Write short answers to any FOUR (4) questions: (8)

(i) What is difference between bit and byte?

Ans A **bit** is the smallest unit of data that can be used by a computer. The data is grouped into bytes and a byte is the number of bits needed to store a character. While a **byte** is comprised of eight bits.

(ii) What is meant by Boolean algebra?

Ans Two-valued Boolean algebra is a set that has two elements and two operations usually denoted by . and + are defined on the set.

(iii) What is Minterm?

Ans The product of literals is called a minterm.

(iv) Write name of any two operating systems.

Ans Name of two operating systems are:

1. Real Time Operating System

2. Network Operating System

(v) State the purpose of CD command.

Ans CD command is the most frequently used DoS command. This command is used to change the present working directory.

(vi) What is meant by interpreter?

Ans An interpreter translates a high level programming language into machine language during the actual step-by-step execution of a programme.

4. Write short answers to any FOUR (4) questions: 8

(i) Convert $(185)_{10}$ into hexadecimal.

Ans

	Number	Remainder
16	185	
16	11	9
	0	B

$185_{(10)} = 0\ B\ 9_{(16)}$

(ii) Take 2's complement of the binary number.

Ans **Step 1:**

Taking 1's complement of the given number results in 1100110.

Step 2:

Adding 1 in the result give us:

$$\begin{array}{r} 10011001 \\ +1 \\ \hline 10011010 \end{array}$$

So, 2's complement of 01100110 = 10011010.

(iii) What is icon?

Ans An Icon is a graphic image. Icons help you execute commands quickly. Commands tell the computer what you want

the computer to do. These may be shortcuts to applications which are installed on your computer. If you want to execute a command by using an icon, double-click on it.

(iv) What do you know about start button?

Ans START button is the gateway of accessing most of the functionality available in the computer loaded with Windows. Just Click on the Start button anytime to start any programs, open or find documents, change windows settings, get Help, manage Files, maintain system, and much more.

(v) What is the benefit of using antivirus program?

Ans If a virus is detected, antivirus program will eliminate it.

(vi) What is meant by Windows Desktop?

Ans When you start your computer, the desktop is the first thing you see after logging into the computer.

(Part-II)

NOTE: Attempt any TWO (2) questions.

Q.5. What is meant by High Level and Low Level Language? Explain the Machine Language and Assembly Language. (8)

Ans **High Level Languages:**

High level languages are closed to human languages and far from the machine language. These are machine independent languages, which are also known as "third generation" languages. These languages consist of English words, basic mathematical symbols and a few punctuation characters. These languages allow simple statements to be expressed concisely. Each high level language has its own language translator.

Low Level Languages:

Low level languages provide the programmer with a high degree of control, but they require a detailed knowledge of the hardware to be used. They are really only required for advanced programming needs. There are two main types of low level languages:

1. Machine Language:

The processor within a computer can perform various operations, each of which is identified by an operation code (or opcode). It is possible to write a program directly in machine code by using the correct opcodes in the correct sequence into memory, along with the required data values and parameter values. The program could be depicted as a series of binary numbers. This, however, is not a very practical way to write a program. Apart from being complex and time-consuming, programs written in this way would tend to be error prone and would be very difficult to debug. For this reason, programs are generally written in a language which is easier for humans to understand and can also be translated into machine code for the processor to understand.

2. Assembly Language:

Assembly language is very close to machine language. The commands are represented in Assembly Language by short names called mnemonics (pronounced as Ne-Monics). For example, ld means Load Accumulator with a particular data value. Because each type of processor has a different set of operations, different processors use different Assembly languages. Assembly language programming is complex but it provides a much higher degree of control than high level languages. Programs written in Assembly Language code are translated into machine code by an assembler. Machine code

can also be converted back into assembly code using a deassembler.

Q.6. Define the hard disk. How data is stored and retrieved from the hard disk? (8)

Ans **Hard Dick:**

Most digital computers use at least one hard-disk drive. Some large-scale computers normally contain hundreds of hard disks. Hard disks are used to permanently store digital data so you can say that hard disks give computers the ability to remember things when the power goes out. In this section, we shall learn the function of a hard disk and also analyze the working of a hard disk.

How Data is Stored on/Retrieved from the Hard Disk:

As per working, the data is organized into tracks and sectors. Each track has a unique number. First track always has the number 0 0 0 called track zero. Similarly, sectors on a track are numbered. When some software or operating system of the computer wants to read some data on some part of the disk, it specifies the address of the location and provides the data. By using the provided address, the disk controller moves the read/write heads to the required track. It also uses the motor in the disk to rotate the disk platters. Because of this mechanical component, this process is very slow as compared to the speed of the processor. When the head reaches the required track, the read/write head has to wait for some time so that the required sector come sunder it due to the rotation of the platters. This delay is called the rotational delay. When the appropriate sector comes under the read/write head, it reads the data from the disk and send this data to the processor. The

time consumed in this process is called the transfer delay. These three delays are used to calculate the access time of data.

Access Time = Seek Time + Rotational Delay + Transfer Delay

Obviously, the seek time and rotational delay involve mechanical parts and are very large. Because of the delays, the hard disk is very slow as compared to the CPU.

Q.7. Calculate (–54 – 30) using 8 bits 1's complement method. **(8)**

Ans We can write –54 – 30 = (–54) + (–30)

Step 1: Write magnitude of both numbers in 8 bits.

$54 = 00110110_{(2)}$ and $30 = 00011110_{(2)}$

Step 2: Represent both numbers in 2's complement.

–54 = 11001010 and –30 = 11100010

Step 3: Add the 2's complement representation and ignore the end carry.

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  11001010
+ 11100010
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End Carry 1   10101100
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So the answer is 10101100 and it is in 2's complement.

Step 4: Convert the 2's complement result into decimal.

10101100 = –01010100 = –84